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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590

09/11/2007

RECEIVED

SEP 17 2007

Dennis V. Carmen
Eastman Chemical Company
P.O. Box 511
Kingsport, TN 37662-5075

EASTMAN CHEMICAL COMPANY
LEGAL DEPARTMENT

EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 09/11/2007

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,664	09/18/2003	Mary Therese Jernigan	71635	8569

TITLE OF INVENTION: THERMAL CRYSTALLIZATION OF POLYESTER PELLETS IN LIQUID

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/11/2007

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590

09/11/2007

Dennis V. Carmen
 Eastman Chemical Company
 P.O. Box 511
 Kingsport, TN 37662-5075

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,664	09/18/2003	Mary Therese Jernigan	71635	8569

TITLE OF INVENTION: THERMAL CRYSTALLIZATION OF POLYESTER PELLETS IN LIQUID

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/11/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
ZEMEL, IRINA SOPJIA	1711	528-480000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).	2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
<input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.	1 _____

"Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
<input type="checkbox"/> Issue Fee	<input type="checkbox"/> A check is enclosed.
<input type="checkbox"/> Publication Fee (No small entity discount permitted)	<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.
<input type="checkbox"/> Advance Order - # of Copies _____	<input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)	<input type="checkbox"/> a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.	<input type="checkbox"/> b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).
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NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,664	09/18/2003	Mary Therese Jernigan	71635	8569
7590	09/11/2007			
Dennis V. Carmen Eastman Chemical Company P.O. Box 511 Kingsport, TN 37662-5075				EXAMINER ZEMEL, IRINA SOPJIA
				ART UNIT 1711 PAPER NUMBER DATE MAILED: 09/11/2007

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)
	10/665,664	JERNIGAN ET AL.
	Examiner	Art Unit
	Irina S. Zemel	1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 7-30-2007.
2. The allowed claim(s) is/are 65-85.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 7/30/07; 1/17/07
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows: Please substitute the Abstract with the following ABSTRACT (in one paragraph):

--A process for thermally crystallizing a polyester polymer by introducing pellets into a liquid medium having a temperature of at least 140° C within a liquid medium zone and crystallizing the submerged pellets at or above the vapor pressure of the liquid medium without increasing the molecular weight of the pellets, and while the pressure on at least a portion of the pellets is equal to or greater than the vapor pressure of the liquid medium, separating at least a portion of said pellets and at least a portion of the liquid medium from each other. The crystallization is desirably conducted in the liquid medium zone without mechanically induced agitation. Optionally, the pellets are formed by an underfluid pelletizer. There is also provided a process for thermally crystallizing solid pellets in a pipe by directing a flow of solid pellets in a liquid medium through a pipe having an aspect ratio L/D of at least 50:1, wherein the solid pellets are crystallized in the pipe at a liquid medium temperature greater than the T_g of the polyester polymer.

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REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: The examiner considered the submitted IDS and is still of the opinion that none of the references of record disclose the claimed process conducted in the claimed apparatus with the L/D ratio of at least 15:1, which was **the reason** for allowing the claims of the instant application. The examiner acknowledges the submitted references, i.e., the Office Actions from related applications, and notes that issues regarding related allowed application 10/986,129 were resolved during the prosecution of the instant application. It is further noted that the JP reference cited as the most pertinent prior art in the Office action dated 9-22-2004 in the 10/986,129 application does not disclose pipes with the specified L/D ratio. The Office action in related abandoned application 10/683,522 cites US Patent 5,532,335 as the most relevant prior art, which was cited and considered in the instant application. It is noted That the US Patent 5,532,225 discloses a process similar to the claimed process that is conducted in a pipe-like apparatus, namely Strong Scott "Continuator" or Solidare "Dryer". The examiner is not aware of existing models that satisfy the claimed L/D ratio. Attached are CONTINUATOR Brochure, Strong Scott Divison of Berwind Process Equipment Company, Predecessor of Hosokawa Bepex Corporation and SOLIDAIRE Brochure, Bepex Division of Berwind Corporation, Predecessor of Hosokawa Bepex Corporation wqith specification of all existing models (at least at the time '335 Patent was issued). None of the listed equipment satisfies the claimed L/D/ Ratio (max ratio is about 10).

Should applicants be aware of specific teachings in any of the references available to applicants of a polyester crystallization process that takes place above Tg of polyester in an apparatus that has the claimed L/D parameters or any apparatus suitable for such process, the applicants are respectfully REQUESTED to provide such relevant information and specifically point out relevant portions of submitted documents. Should the applicants have any specific concerns of the disclosure of the prior art cited regarding the patentability of the instant claims, the applicants are also REQUESTED to provide concise explanation of relevancy of the submitted document which appear to have been considered before during the examination of the instant application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

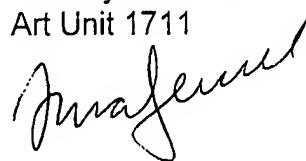
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Irina S. Zemel
Primary Examiner
Art Unit 1711

ISZ



Please type a plus (+) sign in the box P-E

Substitute for form 1449 JAN 17 2007 INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Attorney Docket Number	71635
		First Named Inventor	Jernigan et al.
COMPLETE IF KNOWN			
		Application Number	10/665,664
		Filing Date	September 18, 2003
		Group Art Unit	1711
Sheet	1	of	1
		Examiner Name	

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
/IZ/		7,033,152		Eloo, et al.	04-25-2006
/IZ/		2003/0109640		Lee et al.	06-12-2003
/IZ/		5,895,817		Mizuguchi, et al.	04-20-1999
/IZ/		4,421,470		Nakamura, et al.	12-20-1983
/IZ/		5,942,170		Peltz	08-24-1999

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁴
		Office ³	Number ⁴	Kind Code ⁵ (if known)			
YY		CA	2340358		Rieter Automatik GMBH	01-25-2001	

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author(s) in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁴
YY		Copy of International Search Report	

8-31-07

Examiner Signature	/Irina Zemel/	Date Considered	03/29/2007
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 18 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Please type a plus (+) sign in this box

Substitute for form 1449

JUL 03 2007
U.S. PATENT AND TRADEMARK OFFICE

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Attorney Docket Number	71635				
First Named Inventor	Jernigan et al.				
COMPLETE IF KNOWN					
Application Number	10/665,664				
Filing Date	September 18, 2003				
Group Art Unit	1711				
Sheet	1	of	1	Examiner Name	Irina Sopjia Zemel

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁴
		Office ³	Number ⁴	Kind Code ⁵ (if known)			

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁴
/IZ/		Office Action dated 7/9/2004 from co-pending application number 10/683,522 filed 10/10/2003, ABD	
/IZ/		Notice of Allowance/Notice of Allowability from co-pending application number 10/683,522 filed 10/10/2003, ABD	
/IZ/		Notice of Allowance/Notice of Allowability from co-pending application number 10/986,129 filed 11/10/2004	
/IZ/		Office Action dated March 10, 2006 from co-pending application number 10/986,129 filed 11/10/2004	
/IZ/		Office Action dated September 22, 2006 from co-pending application number 10/986,129 filed 11/10/2004	
/IZ/		Notice of Allowance/Notice of Allowability dated 11/9/2006, from co-pending application number 10/986,129 filed 11/10/2004	

Examiner Signature	/Irina Zemel/	Date Considered	08/17/2007
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449		Attorney Docket Number	71635
		First Named Inventor	Jernigan et al.
COMPLETE IF KNOWN			
		Application Number	10/665,664
		Filing Date	September 18, 2003
		Group Art Unit	1711
Sheet	2	of	2
		Examiner Name	Irina Sopjia Zemel

/IZ/	Supplemental Notice of Allowability dated 12/21/2006 from co-pending application number 10/986,129 filed 11/10/2004	

Examiner Signature	/Irina Zemel/	Date Considered	08/17/2007
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Notice of References Cited

Application/Control No.

10/665,664

Applicant(s)/Patent Under

Reexamination

JERNIGAN ET AL.

Examiner

Irina S. Zemel

Art Unit

1711

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	CONTINUATOR Brochure, Strong Scott Divison of Berwind Process Equipment Company, Predecessor of Hosokawa Bepex Corporation.
	V	SOLIDAIRE Brochure, Bepex Divison of Berwind Corporation, Predecessor of Hosokawa Bepex Corporation.
	W	
	X	

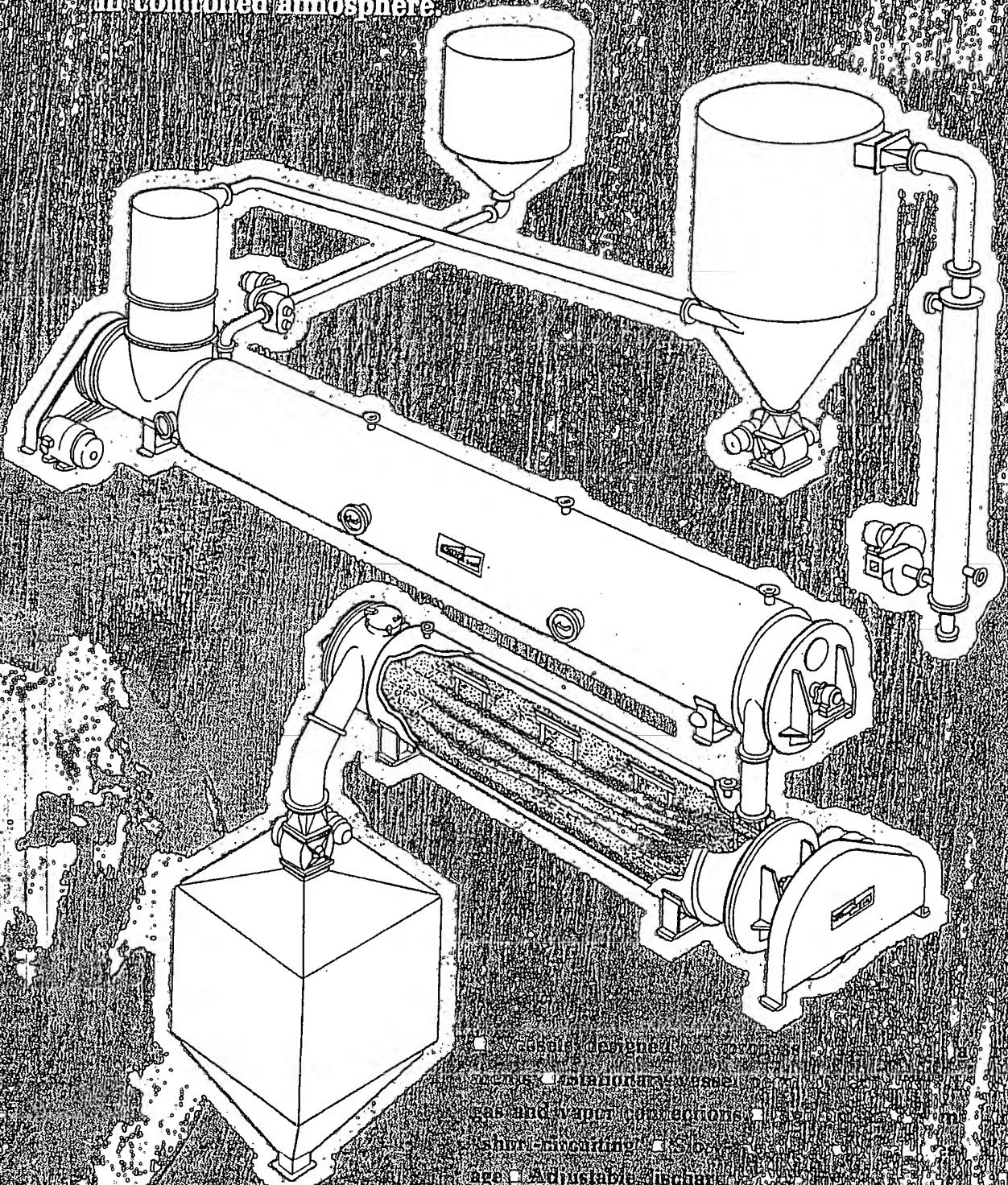
*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(e).)

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Strong Scott

CONTINUATOR

For the final removal of small amounts of tightly entrapped volatiles
in controlled atmosphere.



• Gasoline design for low pressure applications
• Standard or special designs for high pressure applications
• High efficiency
• Adjustable air bleed
• Product protection
• Vacuum or positive pressure

Strong Scott**CONTINUATOR®****CYLINDRICAL VESSELS**

Model	(Note 1) General Overall Dimensions (inches)			Nominal Diameter (inches)	Rotor RPM Range	HP Range	(Note 2) Maximum Volume Product in Retention (cu. ft.)	(Note 3) Effective Jacket Area (sq. ft.)	Approx. Ship. Wt. Continuator & Drive (lbs.)
	Length	Width	Height						
CR20	102	41	37	20	25-75	2-5	7	18	2,400
CR24	127	45	42	24	20-60	3-10	14	26	3,900
CR30	145	51	47	30	18-50	5-20	27	40	4,900
CR36	176	57	53	36	15-45	7½-25	45	55	6,100
CR42	213	63	59	42	12-56	15-40	78	85	9,300
CR48	247	69	65	48	11-33	20-50	128	120	12,350
CR60	278	81	79	60	9-27	25-60	235	170	15,150
CR72	290	93	91	72	8-25	30-75	340	200	22,500
CR84	295	105	103	84	7-20	40-125	463	235	30,500

U-SHAPE VESSELS (CONTINUATOR)

Model	General Overall Dimensions (inches)			Nominal Rotor Diameter (inches)	Rotor RPM Range	HP Range	(Note 2) Maximum Volume Product in Retention (cu. ft.)	(Note 3) Effective Jacket Area (sq. ft.)	Approx. Ship. Wt. Continuator & Drive (lbs.)
	Length	Width	Height						
CRU9	84	23	34	18	26-56	3-5	9	15	1,400
CRU16	72	32	45	26	18-40	5-10	16	19	1,700
CRU23	99	32	45	26	18-40	5-15	23	28	2,400
CRU30	123	32	45	26	18-40	5-20	30	38	2,800
CRU45	101	44	55	38	15-30	7½-25	45	39	3,300
CRU60	125	44	55	38	15-30	10-30	60	51	4,600
CRU87	123	52	64	45	10-25	15-40	87	59	5,200
CRU111	157	52	64	45	10-25	15-40	111	74	5,700
CRU135	181	52	64	45	10-25	20-50	135	89	6,600
CRU200	158	68	81	60	8-20	25-60	200	100	12,000
CRU250	188	68	81	60	8-20	25-60	250	125	12,700
CRU300	218	68	81	60	8-20	30-75	300	150	14,000
CRU400	240	85	92	68	6-16	40-125	400	165	15,500
CRU500	240	85	98	78	6-16	50-125	500	205	17,000
CRU680	240	96	110	90	5-12	60-150	680	240	20,000

NOTES ON CYLINDRICAL VESSELS

1. Based on flat end plates.
2. Based on 75% filling of vessel.
3. Based on 240° of cylindrical portion of vessel; total jacket area is 50% greater.

NOTES ON U-SHAPE VESSELS

1. Normally for internal pressure less than 10 psig.
2. Based on volume equal to cylinder generated by rotor.
3. Total jacket area is approximately one-third greater.

Challenge us with your processing problems. Strong-Scott engineers will analyze them and suggest the most effective methods of meeting your requirements.

Pre-test your product on a production model Continuator dryer in our customer service laboratory. All test results are kept confidential.

The **Strong Scott**
Mfg. Co.

Berwind Process Equipment Company

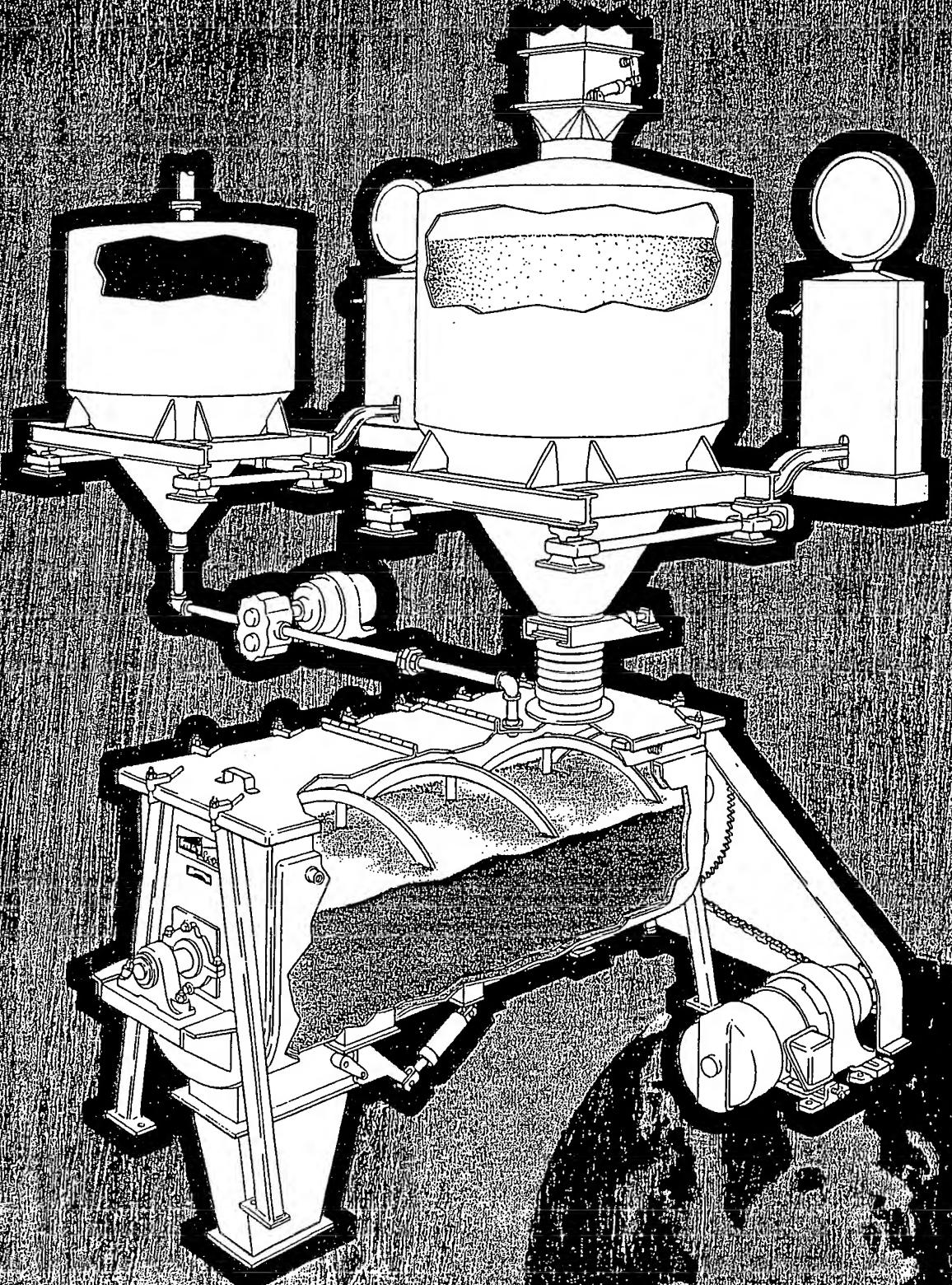
333 N.E. TAFT STREET • MINNEAPOLIS, MINNESOTA 55413
TELEPHONE: (612) 331-4370 • TELEX: 29-0366

DEDEX
corporation
A Subsidiary of Berwind Corporation

U.S. Pat. No. 3,400,000

RIBBON BLENDER

For thoroughly blending a wide range of dry or liquid materials.



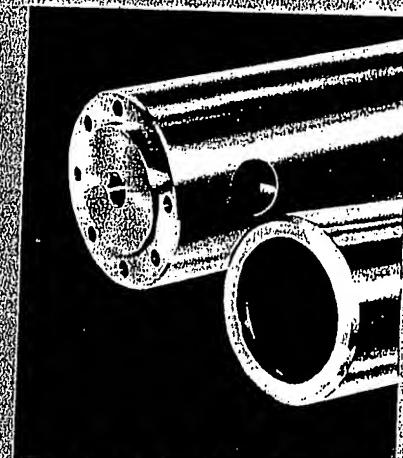
Standard Features.



Seamless vessel construction with rolled top edge and generously radiused corners.



Ribbon assembly with welded sweep-radius at all junctions.

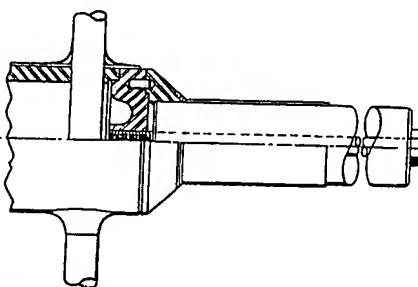
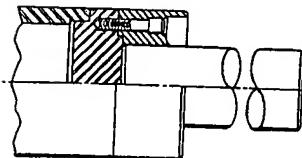


Heavy-duty tubular shaft.

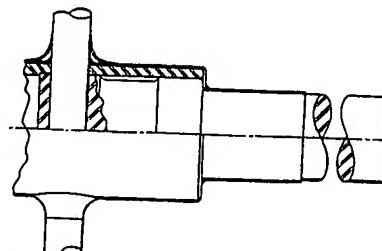


Quick-disconnect couplings for easy removal of ribbon assembly:

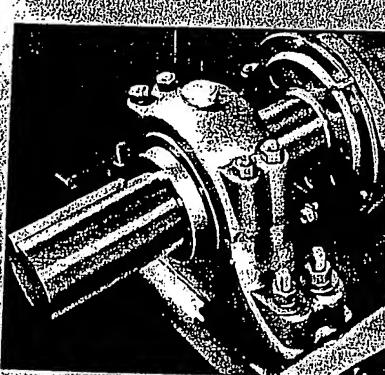
1. Standard coupling for low pressure and shaft size 7 $\frac{1}{4}$ " and less.



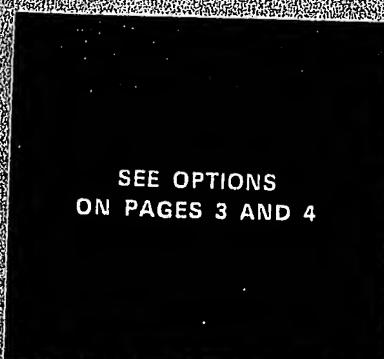
2. Modified coupling for medium pressure and for shaft size over 7 $\frac{1}{4}$ ".



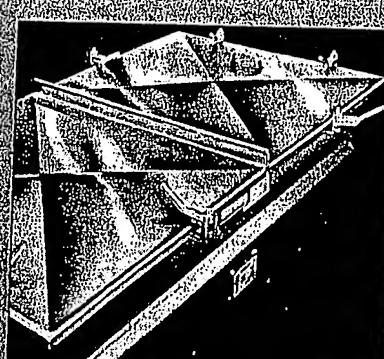
3. Fixed journal for use in cylindrical high pressure units.



Heavy-duty anti-friction outboard bearings.



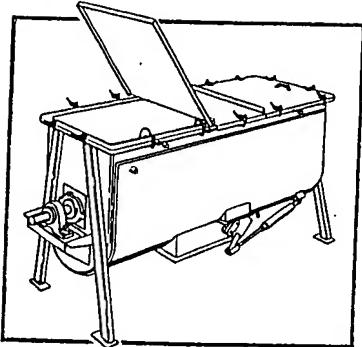
Shaft seals and discharge gates to meet exacting process requirements.



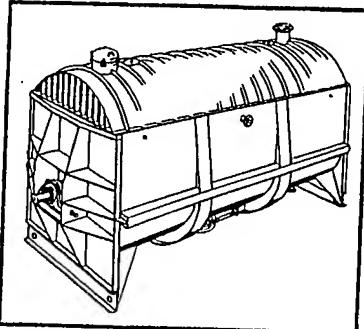
Sectionalized disked cover with quick-action clamps (U-shaped vessel).

Optional Features

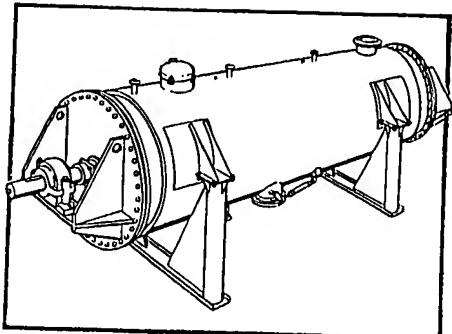
VESSELS



1. U-shaped vessel with flat cover, for internal pressure to 15 in. W.G. and negative pressure to minus 10 in. W.G.



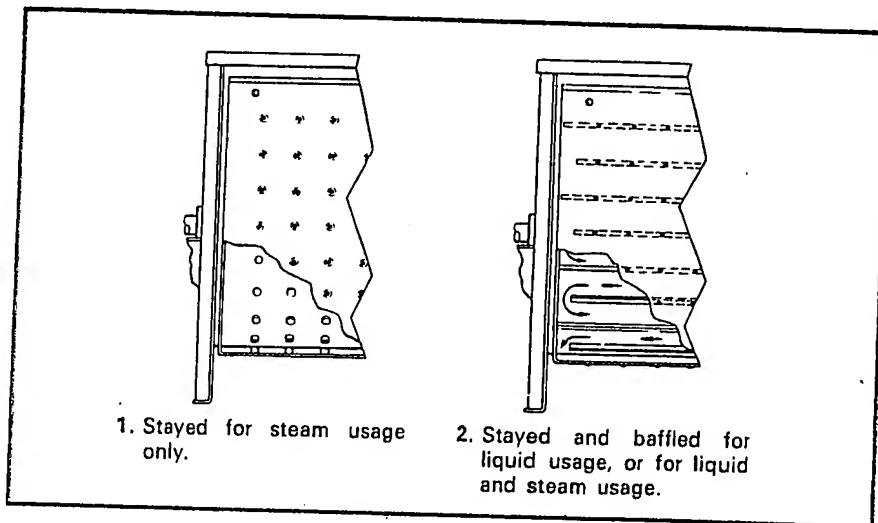
2. U-shaped vessel with domed cover, for internal pressure to 10 psig and vacuum to 6 in. Hg.



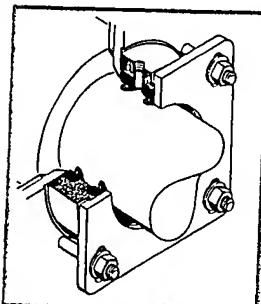
3. Cylindrical vessel for internal pressure to 200 psig and full vacuum.

JACKETS

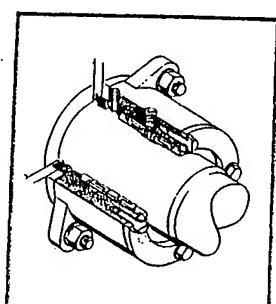
Both jacket styles available for full vacuum to 200 psig. (ASME code construction for pressures in excess of 15 psig.)



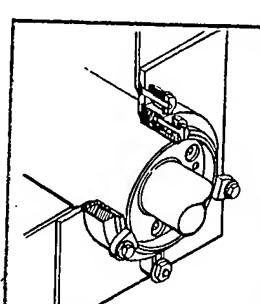
SEALS



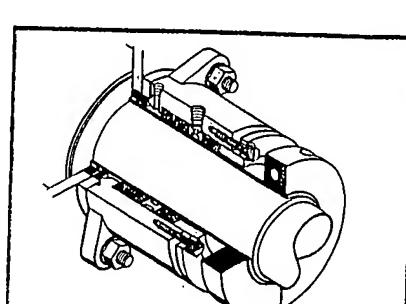
1. Double lip gas purge.



2. Mechanical with gas purge.



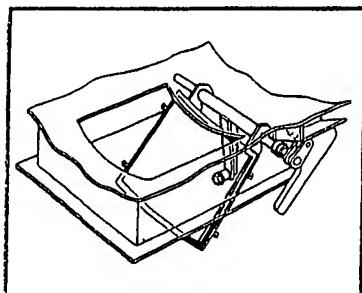
3. Stuffing box.



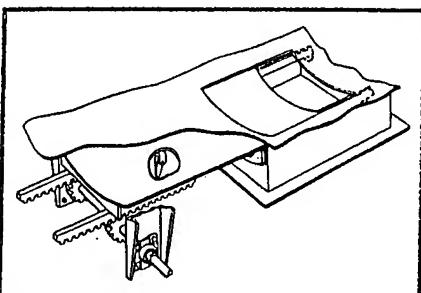
4. Stuffing box with gas purge.

Optional Features (continued)

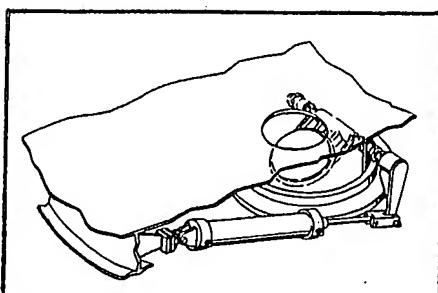
■ GATES



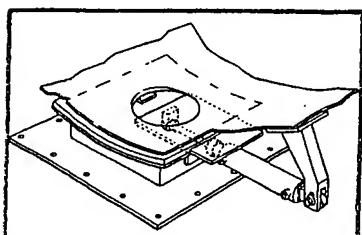
1. Swing (pocketless).



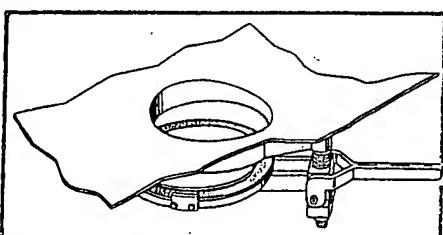
2. Curved slide.



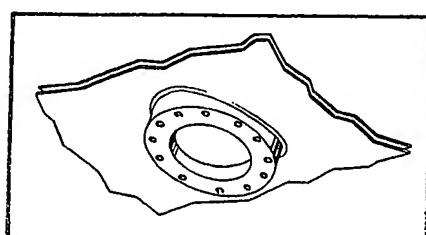
3. Tapered plug (pocketless, for vacuum or pressure).



4. Knife-edge slide.

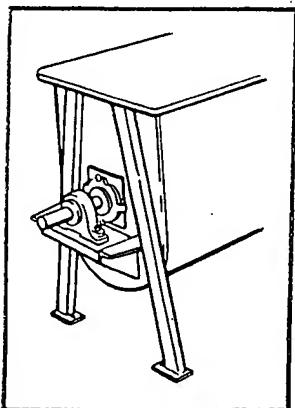


5. Horizontal pivot with resilient seal.

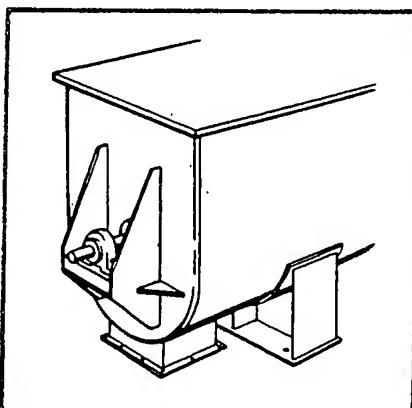


6. Pad Adaptor.

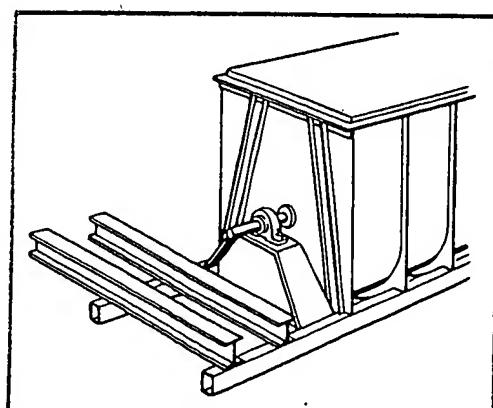
■ MOUNTING OF VESSEL



1. Legs (standard for U-shaped vessels).



2. Pedestal mount.



3. Rectangular foot with box frame support.

■ GATE ACTUATORS:

Pneumatic gate actuators available with option of manual or electrical control valves.

■ DRIVES

1. V-belt with shaft-mounted reducer, 20 hp maximum.
2. Roller chain with gearmotor.

■ MATERIALS OF CONSTRUCTION

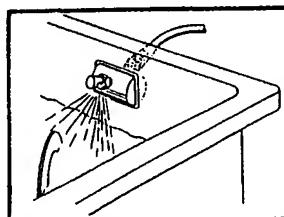
Carbon steel, stainless steel, or other alloys to meet exacting process requirements.

■ FINISH

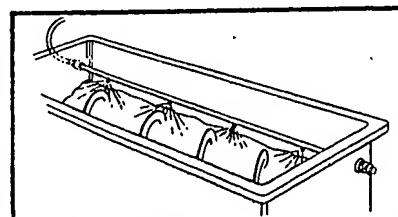
1. Internal: Hot rolled, cold rolled, or ground and polished.
2. External: Painted, with high temperature-resistant enamel, or finished to customer specifications.

Accessories

■ SPRAY NOZZLES

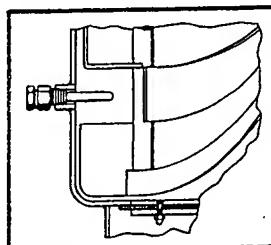


1. Through vessel wall.

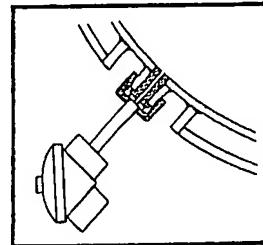


2. Through end plate, removable manifold.

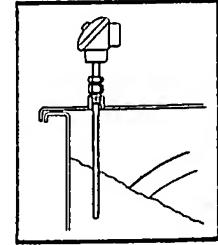
■ TEMPERATURE PROBES



1. Through end plate.

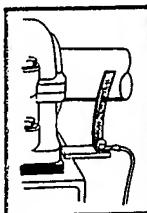


2. Through vessel wall.
Flush-type with thin-wall thermocouple and insulating sleeve.

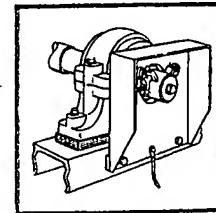


3. Through cover.

■ SHAFT GROUNDING DEVICES

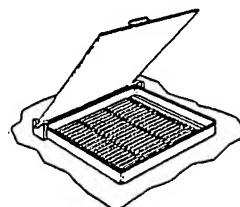


1. Bronze spring.

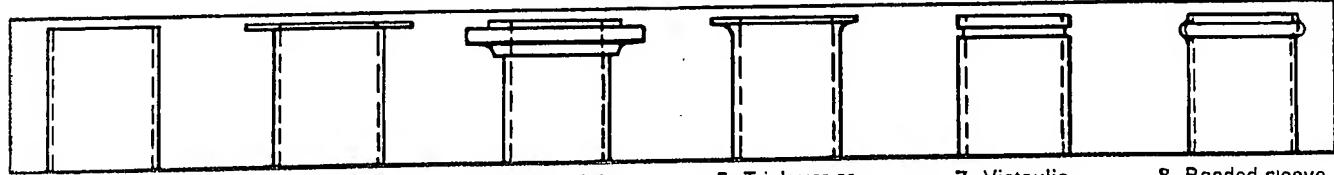


2. Carbon brush.

■ PRODUCT INLETS



1. Hinged cover with removable grate.



2. Straight sleeve. 3. Sheet metal flange. 4. ASA lap joint.

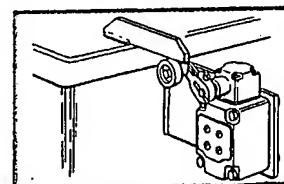
5. Triclover or

7. Victaulic.

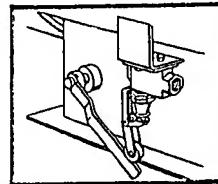
6. Aeroquip.

8. Beaded sleeve.

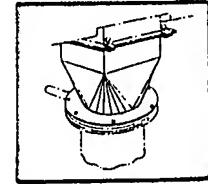
■ CONTROL DEVICES



1. Cover safety switch.



2. Gate position switch



3. Discharge flow control adaptor.

Self-Service Sizing

Working Capacity

Capacities which are given in the table are *working capacities* of blenders with a charge of free-flowing powdered or granular product in the range of 20-50 lbs. per cu. ft. bulk density. For estimating the working capacities for products other than described above:

Working capacity = C multiplied by listed maximum working capacity in cubic feet

Where:

C = 1 to 0.8 for 20-50 lbs. per cu. ft. materials with liquid addition.

C = 0.9 to 0.8 for fine powders which readily fluidize.

C = 0.9 to 0.7 for 50-90 lbs. per cu. ft. materials with liquid addition.

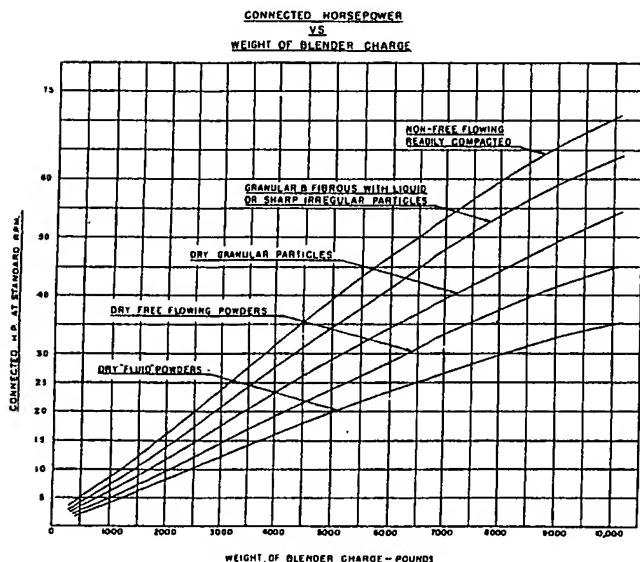
C = 0.7 to 0.6 for pasty materials which tend to "log", or rotate as a mass.

Total Capacity

Total capacity of the units is approximately 1.25 times the working capacity.

Power Requirements

Horsepower required for operation of ribbon blenders is generally a function of the total weight of the charge. However, materials vary substantially in their resistance to movement. Consequently, horsepower demand will vary accordingly. The following chart provides a method of determining horsepower at the listed standard shaft speeds for various weights of charge:



Heat Transfer

For calculating heating or cooling rates, use the effective jacket area column of the table opposite. The areas shown in this column represent the surface of the vessel against which there is good contact by the product when the vessel is filled to the rated capacity. Decrease the area proportionately if full capacity is not used.

Calculate heating or cooling rate using the following values for U (overall coefficients of heat transfer in Btu/hr./sq. ft./°F.) when operating the blender at normal RPM. At this speed, product is swept over the surface at the rate of 250-270 fpm:

U = 30 for fine heavy minerals or metallic particles.

U = 25 for fine organic particles with some wetting of the surface.

U = 20 for fine organic dry particles.

U = 15 for organic particles $\frac{1}{16}$ " to $\frac{1}{8}$ " size.

U = 10 for organic particles in the $\frac{3}{16}$ " to $\frac{1}{4}$ " size range.

U < 10 for very light materials, dry hollow or porous particles.

Calculate heating or cooling time or area of jacket required using the following formulae:

$$T = \frac{W \cdot C_p \cdot \Delta t_p}{A \cdot U \cdot \Delta t_m} \quad A = \frac{W \cdot C_p \cdot \Delta t_p}{T \cdot U \cdot \Delta t_m}$$

Where:

T = time in hours.

W = weight of product in lbs.

C_p = specific heat of product in Btu/lb./°F.

A = jacket area in sq. ft.

Δt_p = difference in temperature (°F.) of product before and after.

Δt_m = log mean temperature (°F.) differential determined from following:

$$\Delta t_m = \frac{\Delta t_1 - \Delta t_2}{\ln \frac{\Delta t_1}{\Delta t_2}}$$

Δt₁ = temperature difference between product and arithmetic average of jacket temperature (°F.) at beginning of cycle.

Δt₂ = temperature difference between product and arithmetic average of jacket temperature (°F.) at end of cycle.

l_n = natural logarithm.

NOTE: Calculations made in accordance with above will result in approximation of essential data. Check with your Bepex representative or arrange for our laboratory test for determination of exact specifications.

Models and Specifications

U-SHAPE VESSELS

Model	Working Cap. (cu. ft.)		Approximate overall blender dimensions (in.)		Std. RPM of shaft	Max HP at Std. RPM			Jacket area (sq. ft.)		Approximate Shipping Wt. blender and drive (lbs.)	Models
	Max.	Min.	Width	Length		Std.	Hvy.	Ex. Hvy.	Full	Effective		
IM2	2	0.7	27	80	20-125	—	1½	—	7	5.3	1,000	IM2
IM5	5	1.7	23	60	54	—	5	—	12	9	1,200	IM5
IM9	9	3.0	23	84	54	—	5	—	20	15	1,400	IM9
IM16	16	5.5	32	72	38	5	7½	10	25	19	1,700	IM16
IM23	23	8	32	99	38	5	7½	15	38	28	2,400	IM23
IM30	30	10	32	123	38	5	10	20	50	38	2,800	IM30
IM45	45	15	44	101	28	7½	15	25	51	39	3,300	IM45
IM60	60	20	44	125	28	10	20	30	68	51	4,600	IM60
IM87	87	29	52	123	23	15	25	40	79	59	5,200	IM87
IM111	111	37	52	157	23	15	25	40	99	74	5,700	IM111
IM135	135	45	52	181	23	20	30	50	119	89	6,600	IM135
IM200	200	67	68	158	18	25	40	60	135	100	12,000	IM200
IM250	250	75	68	188	18	25	40	60	168	125	12,700	IM250
IM300	300	100	68	218	18	30	50	75	200	150	14,000	IM300
IM400	400	120	85	204	14	50	75	125	220	165	15,500	IM400
IM500	500	168	85	240	14	50	75	125	275	205	17,000	IM500
IM680	680	230	96	240	10	60	100	150	318	240	20,000	IM680

CYLINDRICAL VESSELS

Model	Working Cap. (cu. ft.)		Approximate overall blender dimensions (in.)		Std. RPM of shaft	Max HP at Std. RPM			Jacket area (sq. ft.)		Approximate Shipping Wt. blender and drive (lbs.)	Models
	Max.	Min.	Width	Length		Std.	Hvy.	Ex. Hvy.	Full	Effective		
IMC7	7	2.5	39	102	48	—	5	—	24	15	2,300	IMC7
IMC14	14	5	44	127	40	5	7½	10	39	25	3,800	IMC14
IMC28	28	10	54	145	32	5	10	20	61	38	4,800	IMC28
IMC42	42	14	62	176	27	7½	15	25	83	52	6,000	IMC42
IMC78	78	26	67	213	23	15	25	40	129	81	9,200	IMC78
IMC125	125	42	84	247	20	20	30	50	175	110	12,000	IMC125
IMC230	230	80	98	278	16	25	40	60	250	157	16,000	IMC230
IMC340	340	114	110	290	13	30	50	75	300	190	23,000	IMC340
IMC460	460	154	124	295	11	50	75	125	350	220	31,000	IMC460

Strong Scott

RIBBON BLENDER

***Challenge us with your Blending,
Cooling, Heating, Gas Contacting,
Liquid Addition, Drying and Volatiles
Removal Problems.***

Bepex engineers will analyze them and suggest the most effective methods of meeting your requirements.

Thousands of our ribbon blenders are in use in the process industries for processing scores of materials and ingredients, including the following:

- | | | | |
|---------------------------|----------------------------------|--|--------------------------------|
| ■ Prepared Frosting Mix | ■ Animal Feeds | ■ Chemicals | ■ Minerals |
| ■ Cod Fish Cakes | ■ Spices | ■ Insecticides | ■ Vitamins |
| ■ Asphalt Emulsion | ■ Dehydrated Soup Mix | ■ Prepared Food Mixes | ■ Prepared Instant Drink Mixes |
| ■ Molding Compounds | ■ Dry Powdered Eggs | ■ Gelatins | ■ Detergents |
| ■ Herbicides | ■ Solid Propellants for Missiles | ■ Ceramics | ■ Electrode Compound |
| ■ Dry Wall Joint Compound | ■ Adhesives | ■ Powdered Milk | ■ Pharmaceuticals |
| ■ Flavorings | ■ Metal Powders | ■ Plastic Resins | ■ Fire Extinguisher Compounds |
| ■ Antibiotics | ■ Cereals | ■ Prepared Cake, Doughnut, Bread, Waffle and Pancake Mixes | ■ Cosmetics |
| ■ Pet Foods | ■ Charcoal Briquette Compound | ■ Pigments | ■ Prepared Pudding Mix |
| ■ Cocoa | | | |

There's a Bepex representative near you. Feel free to consult with him on any processing problem. Or contact us direct by letter or phone.

bēpex
corporation

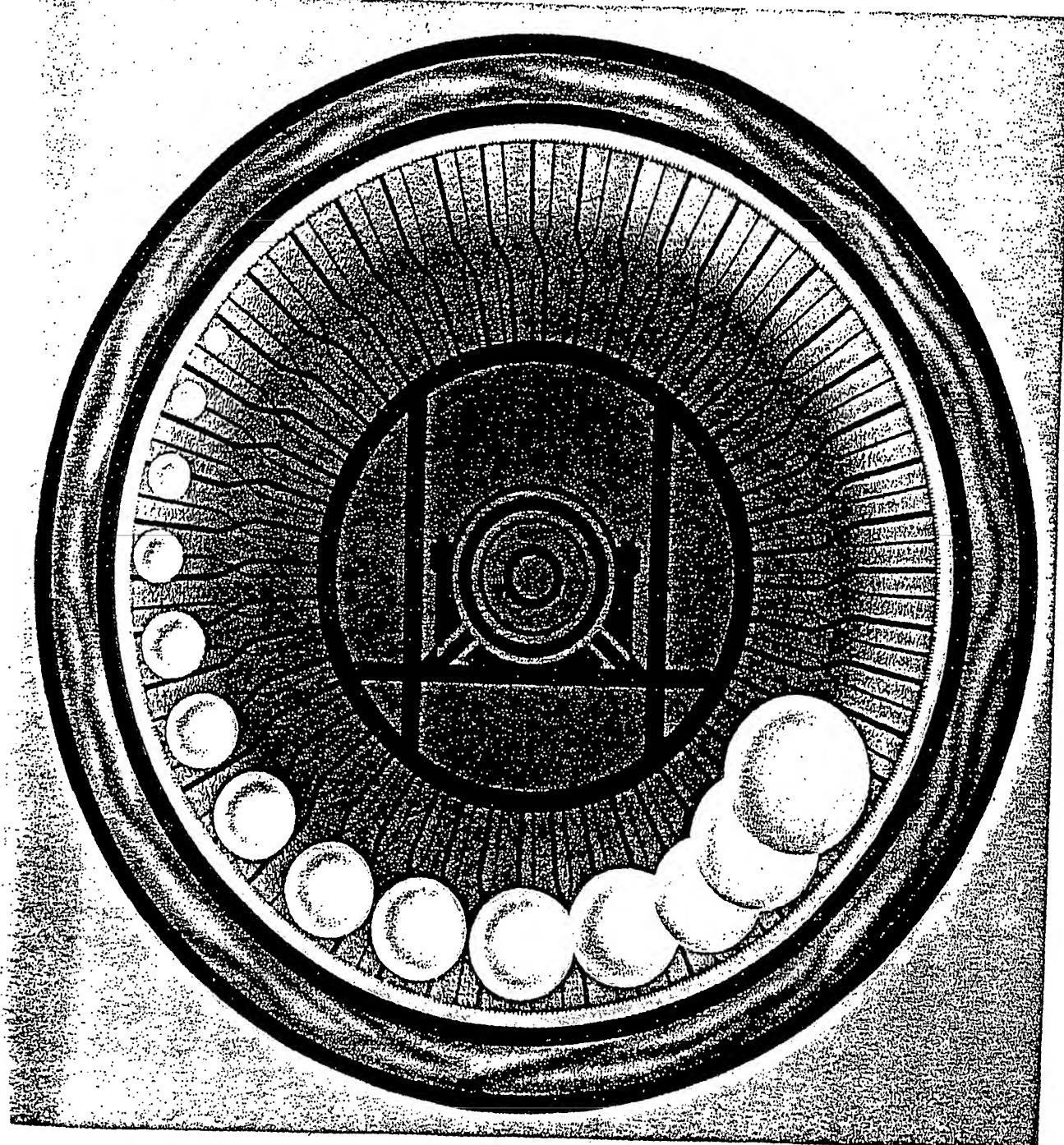
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STRONG-SCOTT, MINNEAPOLIS, MN

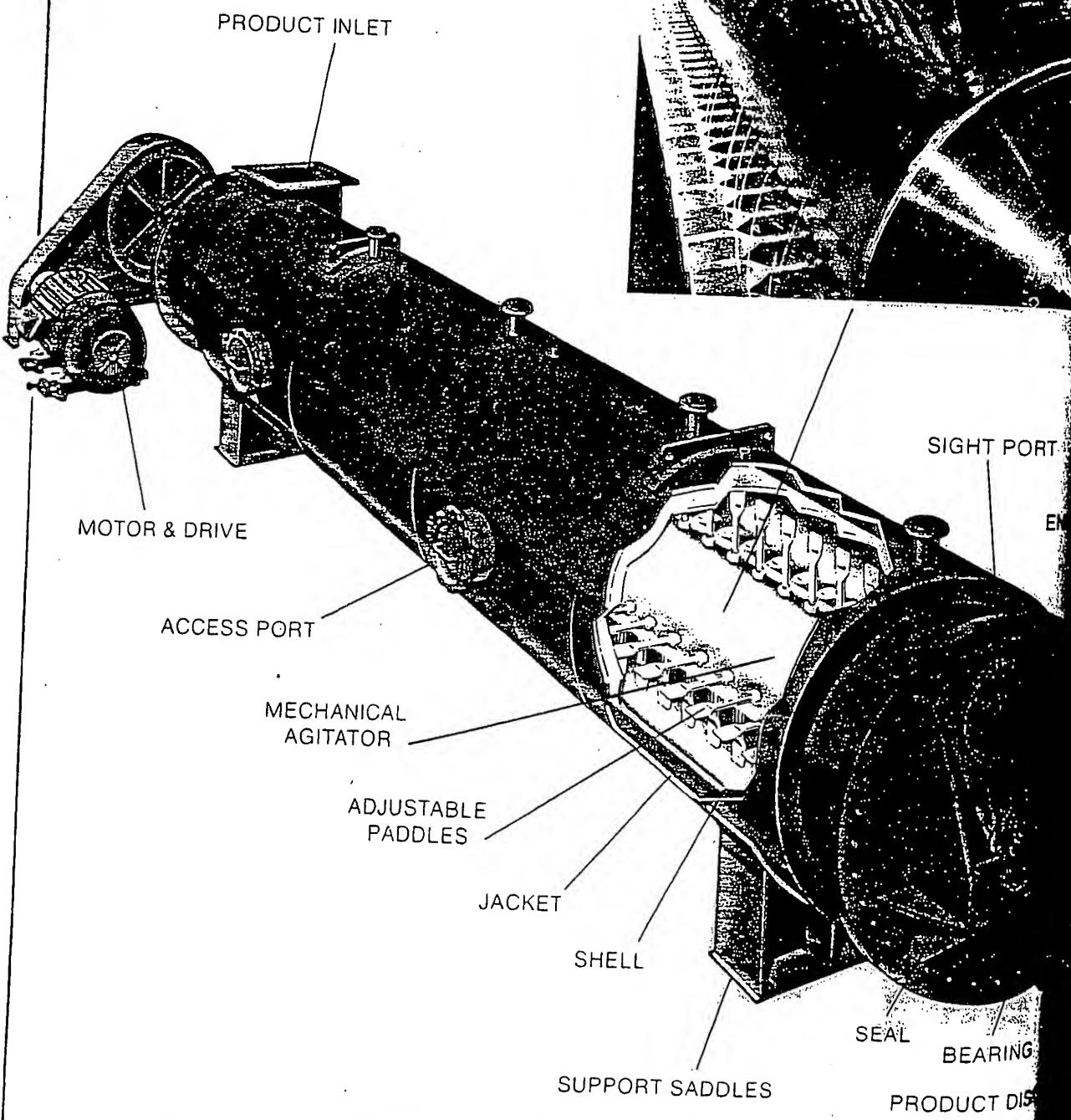
333 N.E. Taft Street • Minneapolis, MN 55413
Telephone: (612) 331-4370 • Telex: 29-0366

bepex
corporation
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Solidaire® Dryer



Design and Features



View of Solidaire rotor and paddles in motion.

Operation

The Solidaire® Dryer employs convective and conductive heat transfer to continuously dry, heat, cool or react solids, slurries and viscous materials processed in the chemical, petrochemical and food industries.

The Solidaire consists of a mechanical agitator rotating in a cylindrical housing. The cylindrical housing usually has a heat transfer jacket which may be constructed for steam or liquid heat transfer media. Jacket operating pressures up to 150 psig are typical. The cylindrical housing can be designed to operate below and above atmospheric pressure.

The agitator is equipped with a large number of narrow, flat, adjustable-pitch paddles which sweep close to the inner surface of the cylindrical housing. The agitator operates at an angular velocity of 3 to 10 times the critical velocity, i.e., the velocity at which the gravity force on the particle is in balance with the centrifugal force. Because of the paddle arrangement on the agitator, the material travels in an annular spiral on the inner surface of the cylindrical housing as the material moves from the inlet port to the discharge port. The residence time in the Solidaire can be varied from seconds to approximately 10 minutes by adjusting the pitch of the paddles or by changing the rotor speed. The high paddle tip speed (2,000-4,000 fpm) creates turbulence in the compact material layer, which breaks up agglomerates and continually exposes new surfaces, thus increasing heat and mass transfer.

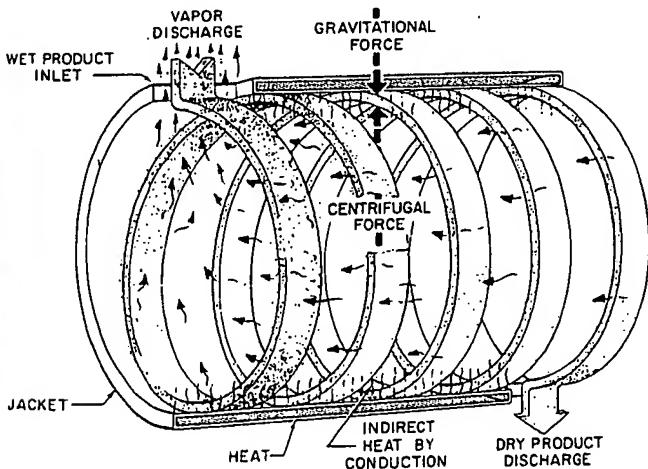


Fig. 1 - Indirect Heat

The Solidaire has three operating modes:

1. Indirect heat transfer—the heat is transferred by conduction through the cylindrical housing wall.

2. Direct heat transfer—the heat is transferred by convection using a gas flow as the heat source.

3. Combination of indirect and direct heat transfer.

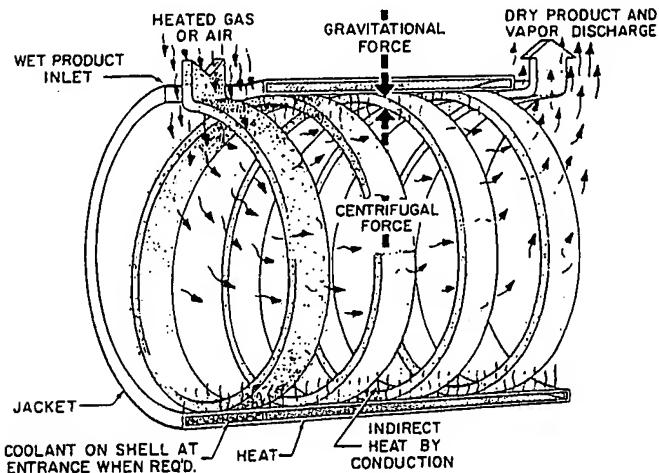


Fig. 2 — Direct and Indirect Heat

Indirect heat transfer is best suited for most solvent evaporation processes. In those processes a counter-current flow of an inert sweep gas is often used to increase the rate of mass transfer (see Figure 1). Usually, a small inert gas flow is used to keep to a minimum the size and costs of the gas recycle and solvent recovery system, including such items as condenser, fan and heat exchanger.

Direct heat transfer is always applied using a cocurrent flow of material and gas. The gas is the carrier for the material. The two components are separated in a cyclone or bag filter placed downstream of the Solidaire. The mechanical agitator controls hold-up and residence time of the processed material. The longer residence time, relative to pneumatic drying systems, extends the Solidaire's use where pneumatic dryers fail to meet the specifications. The Solidaire's capability of handling slurries and pasty materials without backmixing results in a controlled material temperature of each particle, making it a better choice for materials where product degradation is a function of temperature and time.

To minimize system size and cost and to maximize heat efficiency, a combination of direct and indirect heat-exchange is used (see Figure 2). The high heat and mass transfer rates possible in the Solidaire permit smaller-size systems. Consequently, initial capital expenditure and operating expenses can be substantially lower than for other types of equipment.

Solidaire® Dryers are Successfully Processing the Following Products

The Solidaire Dryer is used for processing free-flowing solids, slurries, gels, and wet cakes from filters and centrifuges. Processes may be drying, heating, cooling, reacting, or steam stripping.

DRYING

ABS
Acetal resins
Acids, organic
Agricultural chemicals
Ammonium diurinate
Butadiene styrene latex
Blood, coagulated
Carboxymethylcellulose
Cellulose acetate
Cellulose acetate butyrate
Charcoal
Coffee, ground
Corn meal
Corn starch
Diatomaceous earth
Fish protein
Gypsum
Herbicides
Insecticides
Isophthalic acid
Magnesium dioxide
Magnesium phosphate
Pesticides
Pharmaceuticals
Phosphor
Polybutylene
Polycarbonate
Polyethylene
Polypropylene
Polyvinyl acetate

Polyvinyl chloride

Terephthalic acid
Vinyl chloride stabilizer
Wheat starch
Zinc hydroxide

CRYSTALLIZATION

Polyester pellets

COOLING

Dimethyl terephthalate
Food mixes
Polyolefins
Terephthalic acid
Tripolyphosphate

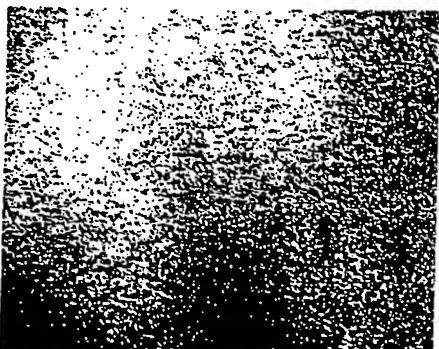
HEATING & REACTION

Ammonium nitrate
Hexamethylenediamine
Pepper
Polycarbonate & additives
Silica sand
Starch
Wheat & soybean concentrate

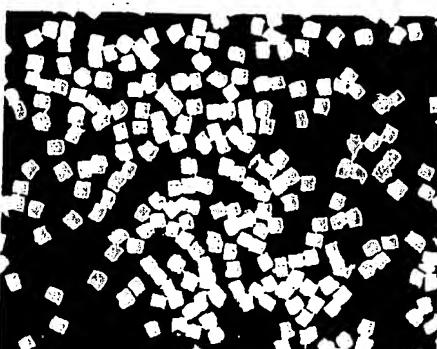
The Solidaire® Dryer is licensed to:

Buttner-Schilde-Haas AG, Krefeld-Uerdingen, West Germany;
Hosokawa Iron Works, Ltd., Hirakata City, Osaka, Japan; and
Rosin Engineering Co., Ltd., Hatton Garden, London, England.

©Solidaire is a registered trademark.



Polyethylene

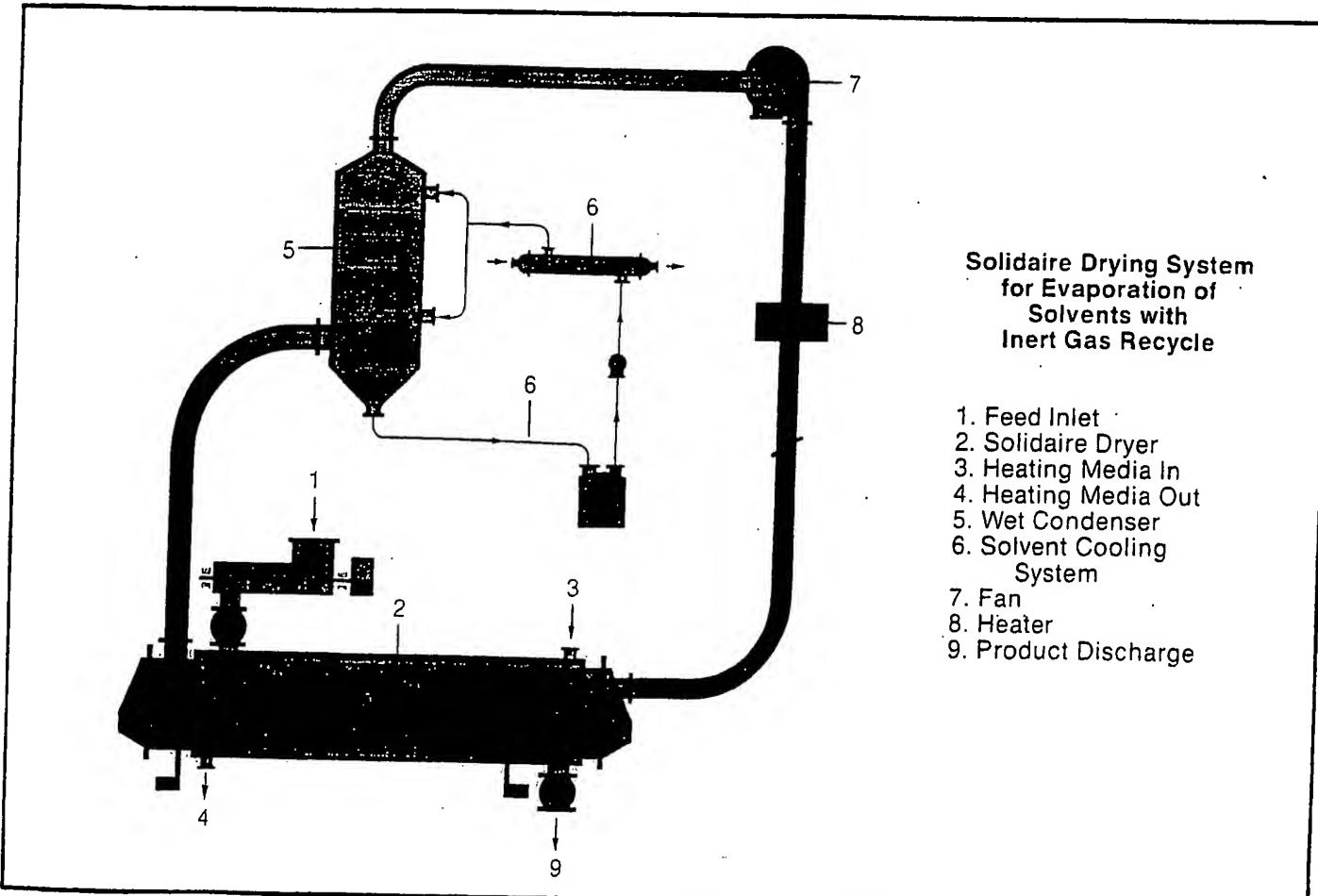
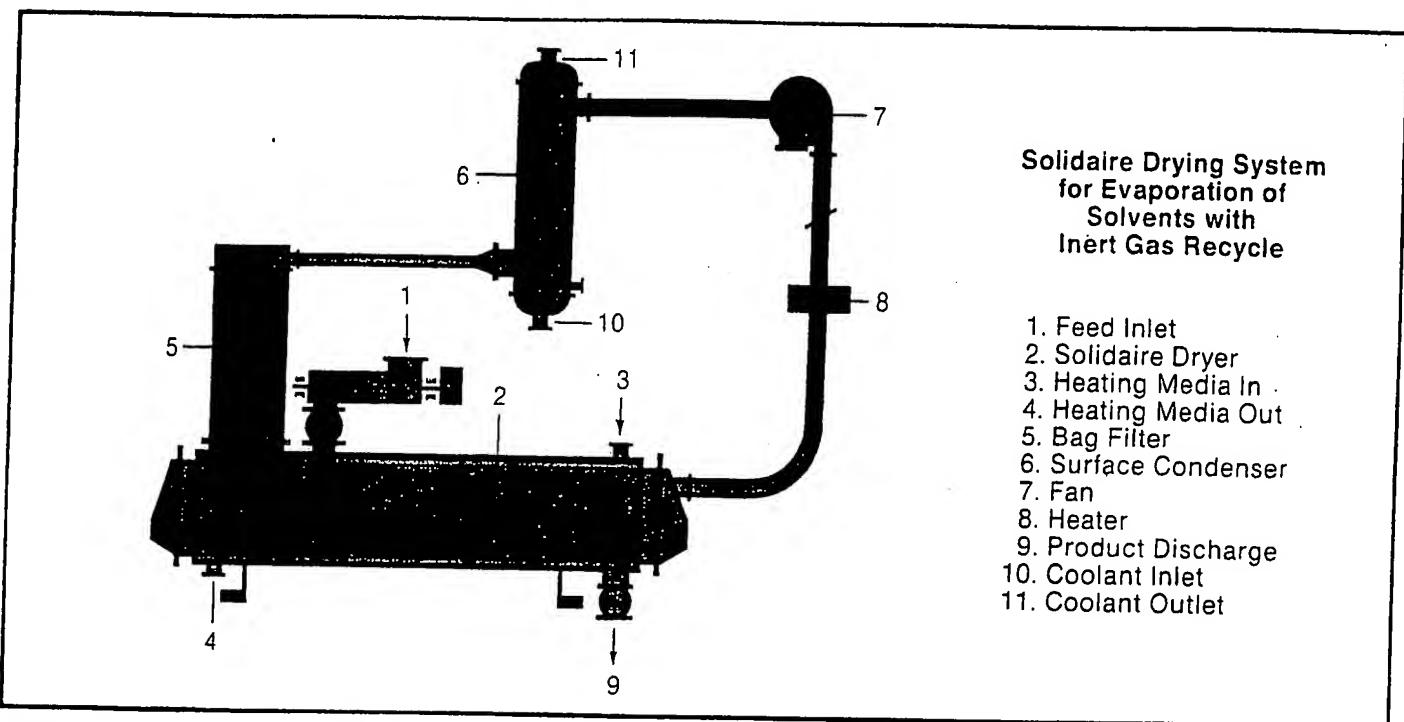


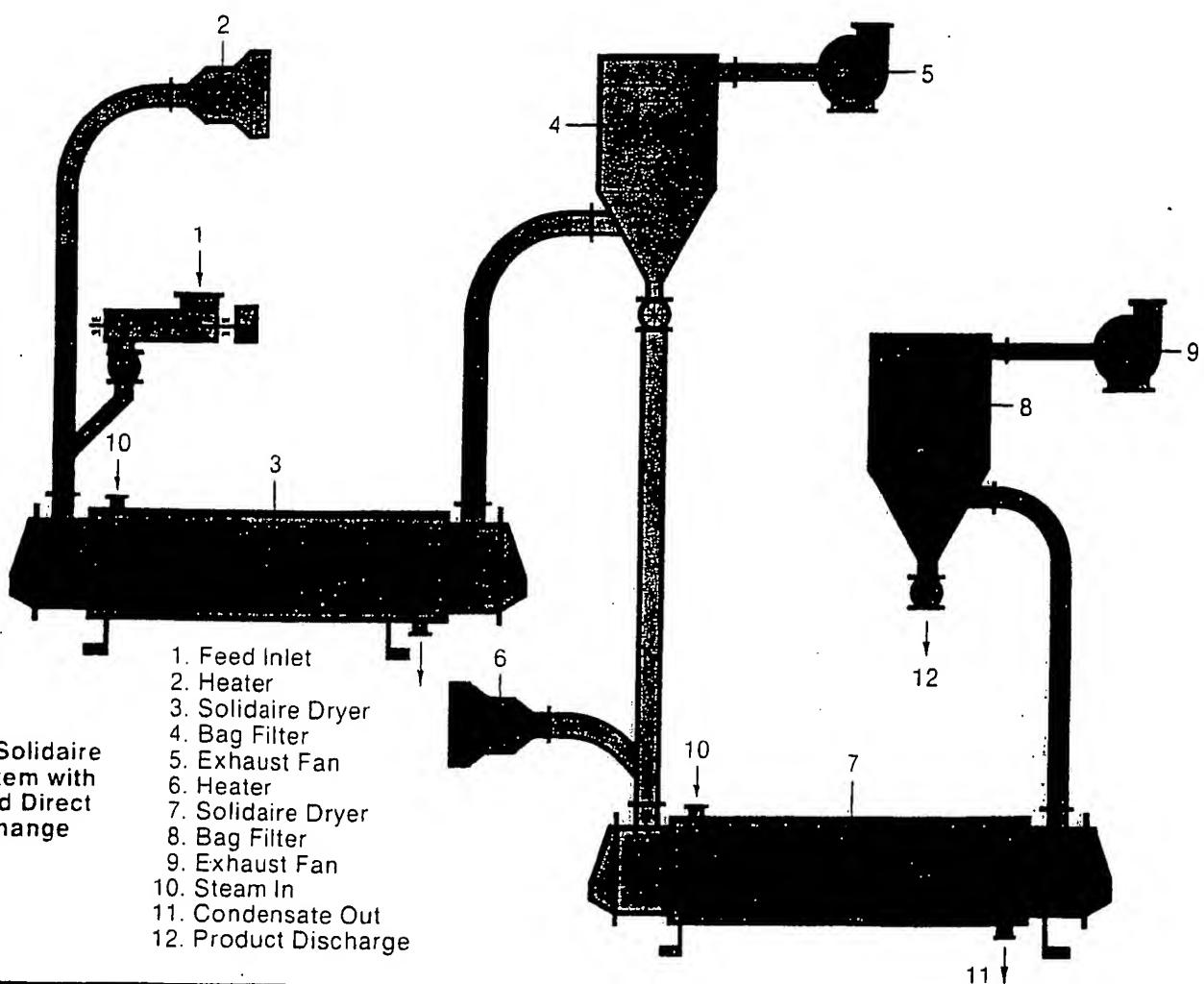
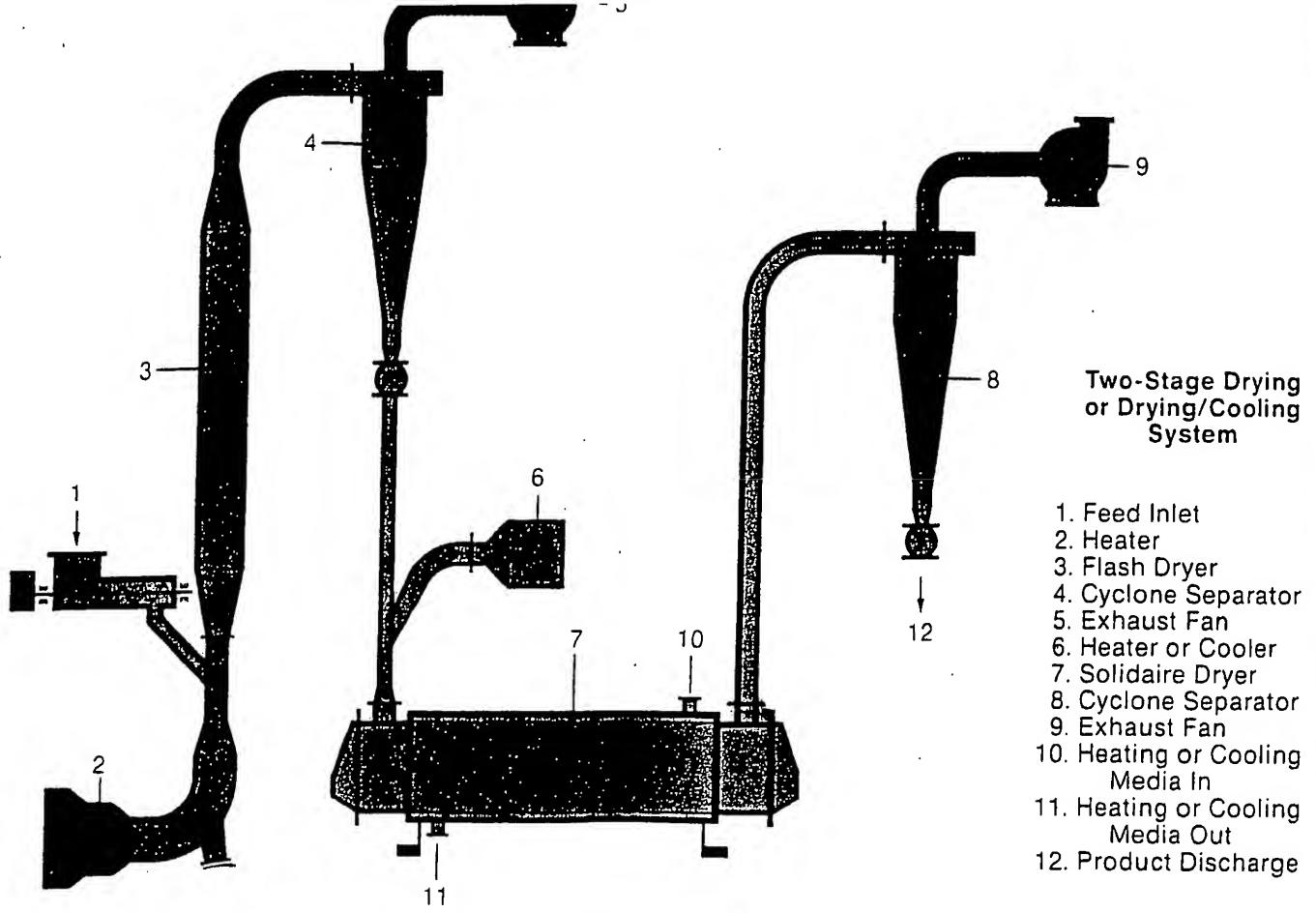
Polyester pellets



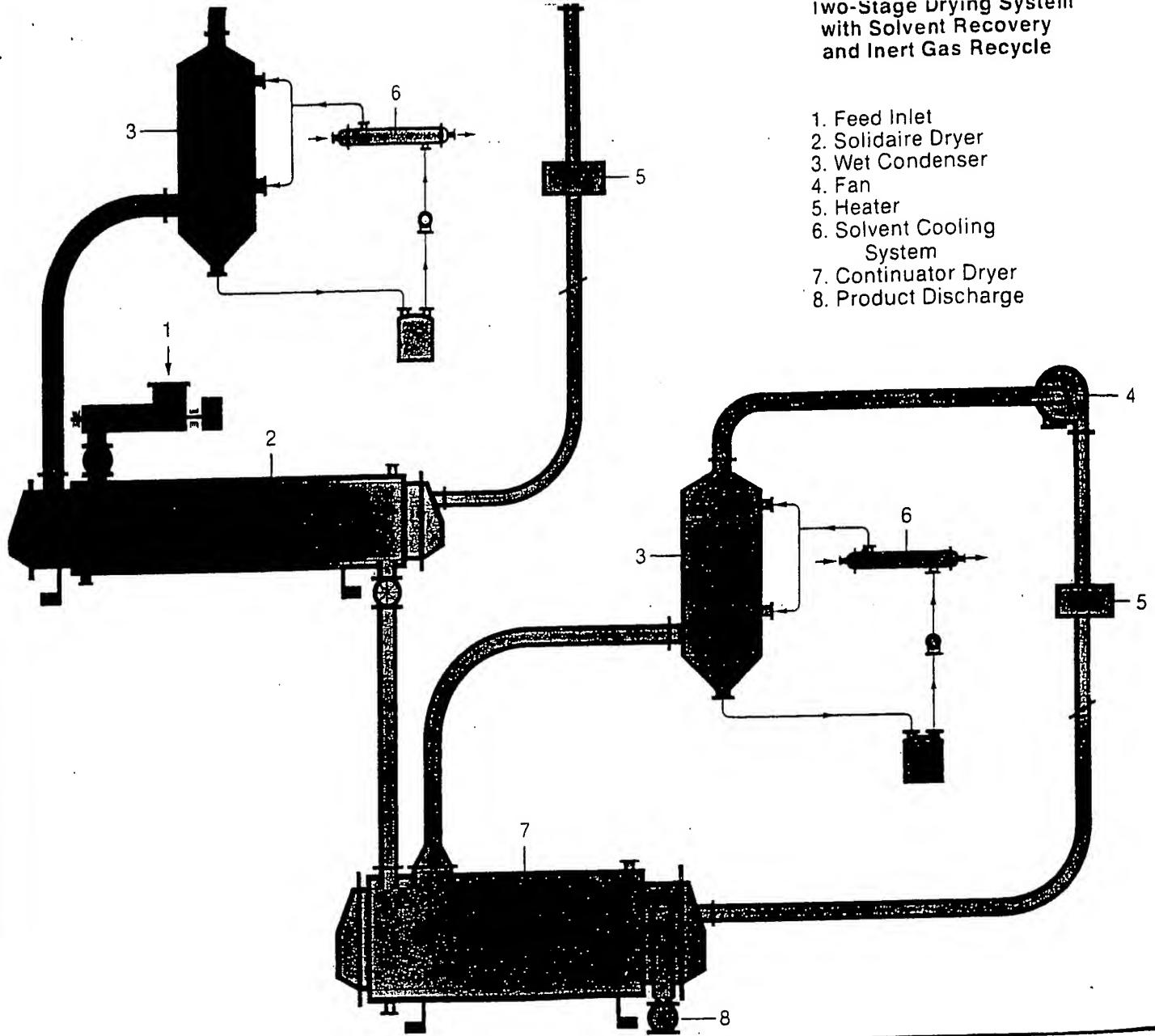
Polyvinyl chloride

Applications

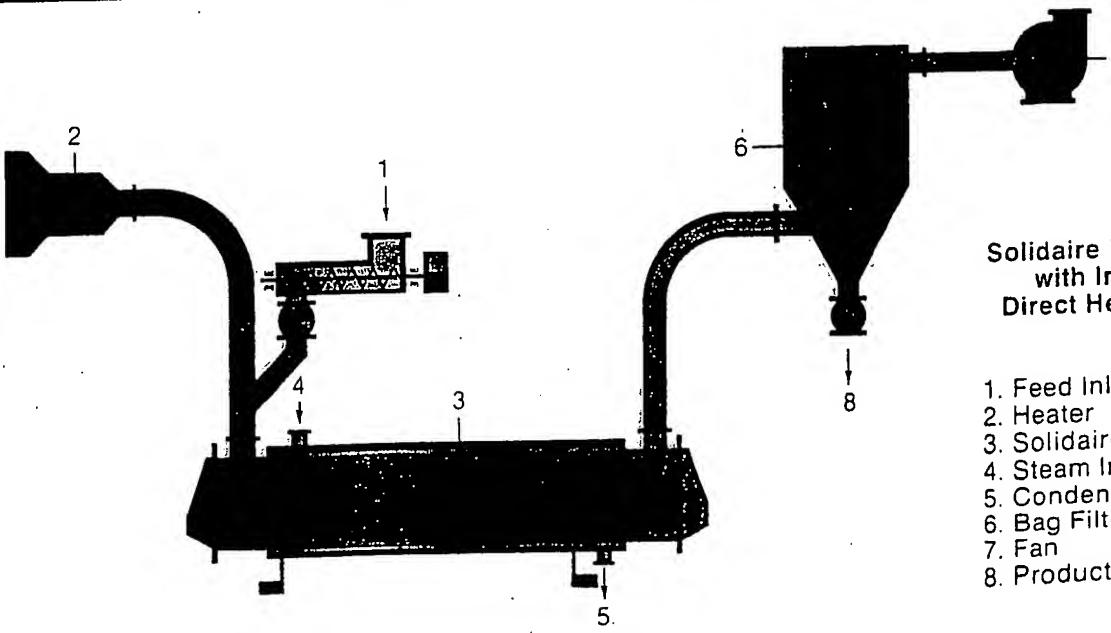




**Two-Stage Drying System
with Solvent Recovery
and Inert Gas Recycle**



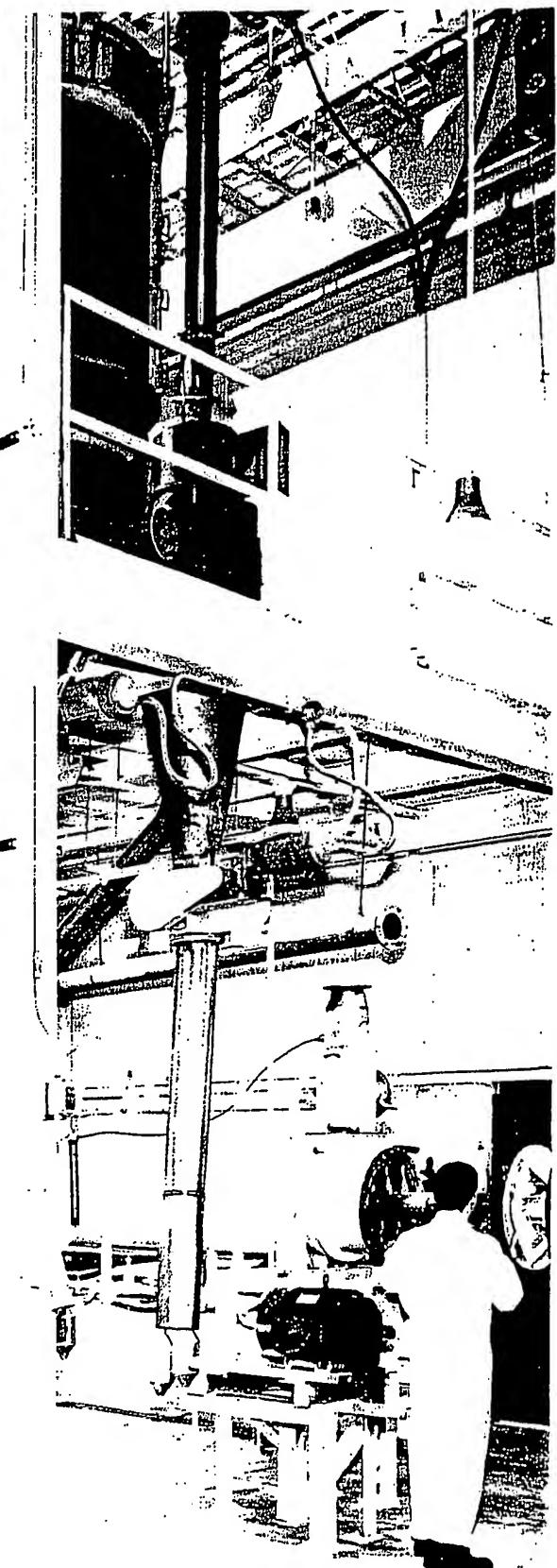
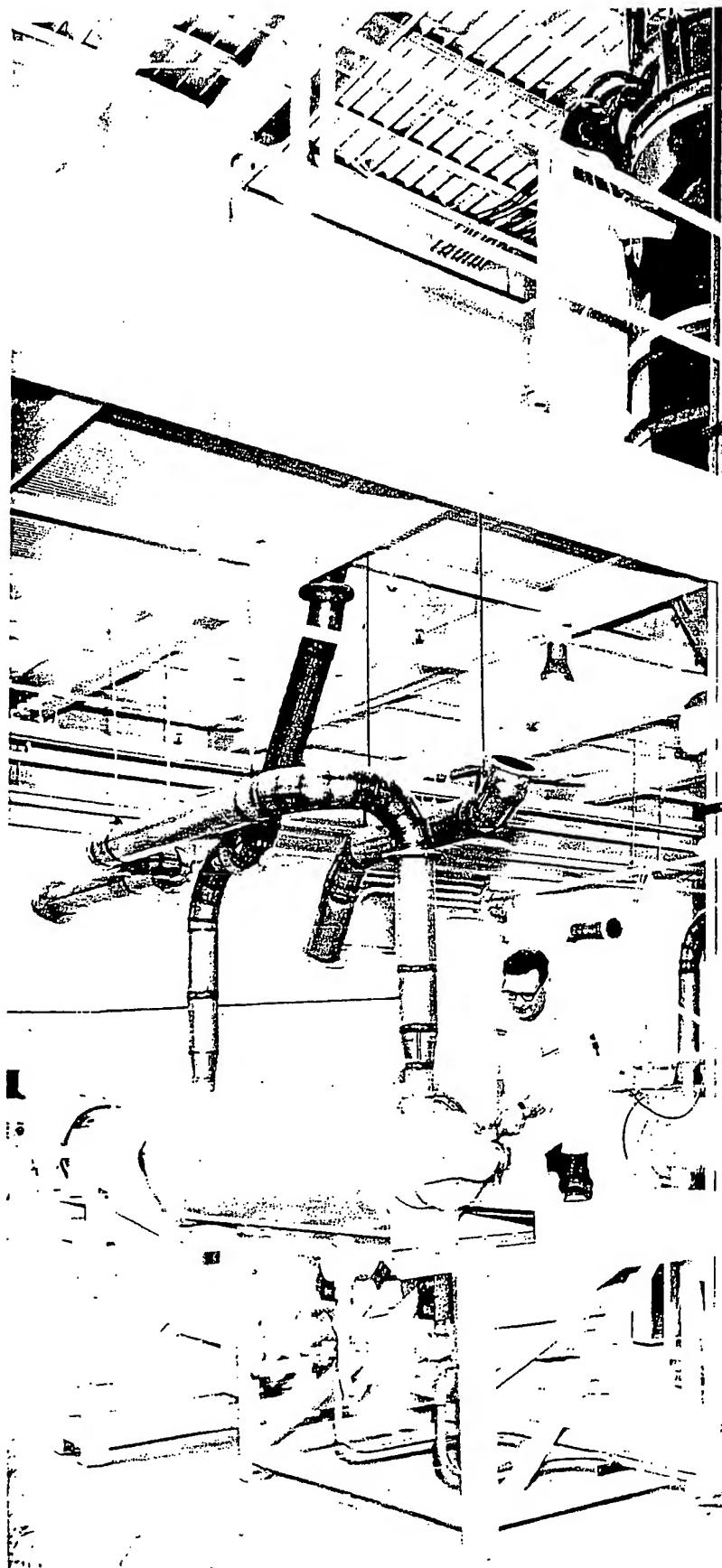
**Solidaire Drying System
with Indirect and
Direct Heat Exchange**



Models and Specifications

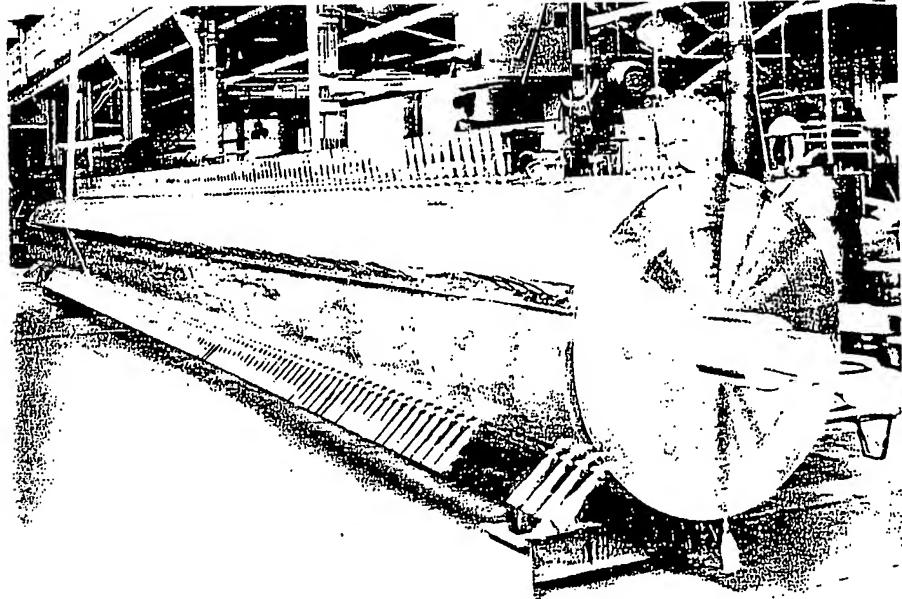
Model	Nominal Dimensions Inches			Diam. Inches	RPM Range		HP Range		Jacket Area Sq. Ft.	Cross- Section Area Sq. Ft.	Approx. Shipping Weight Lbs.
	Length	Width	Height		Min.	Max.	Min.	Max.			
SJ8-4	104	14	18	8	350	1520	3	5	8	0.30	2,000
SJ10-6	116	16	20	10	400	1050	3	10	15	0.45	2,200
SJ16-10	168	22	28	16	250	660	5	15	40	1.3	3,300
SJ24-12	210	40	40	24	170	460	10	50	70	2.3	4,900
SJ24-14	234	40	40	24	170	460	10	50	85	2.3	5,500
SJ24-16	258	40	40	24	170	460	10	50	98	2.3	6,200
SJ30-14	240	48	46	30	144	360	15	75	105	3.7	7,300
SJ30-16	264	48	46	30	144	360	15	75	120	3.7	8,400
SJ30-20	312	48	46	30	144	360	15	75	150	3.7	9,800
SJ36-16	269	54	52	36	130	310	20	100	145	5.3	10,300
SJ36-20	317	54	52	36	130	310	20	100	180	5.3	11,800
SJ36-22	341	54	52	36	130	310	20	100	200	5.3	12,900
SJ42-16	273	60	58	42	100	280	30	100	170	7.2	12,200
SJ42-22	345	60	58	42	100	280	30	100	235	7.2	14,700
SJ42-26	393	60	58	42	100	280	30	100	280	7.2	16,900
SJ48-18	303	66	66	48	100	260	30	125	220	7.7	15,100
SJ48-26	399	66	66	48	100	260	30	125	320	7.7	21,300
SJ48-30	447	66	66	48	100	260	30	125	370	7.7	24,000
SJ54-18	320	72	74	54	90	240	40	150	250	10.0	17,300
SJ54-30	464	72	74	54	90	240	40	150	415	10.0	26,900
SJ54-34	512	72	74	54	90	240	40	150	470	10.0	30,100
SJ60-20	352	78	81	60	75	200	60	200	310	12.6	28,700
SJ60-34	520	78	81	60	75	200	60	200	530	12.6	44,300
SJ60-38	568	78	81	60	75	200	60	200	585	12.6	49,100
SJ72-22	392	90	93	72	65	175	60	250	410	18.7	38,600
SJ72-35	548	90	93	72	65	175	60	250	650	18.7	54,700
SJ72-40	608	90	93	72	65	175	60	250	745	18.7	61,600
SJ72-45	668	90	93	72	65	175	60	250	840	18.7	69,800
SJ84-24	430	102	105	84	50	155	75	300	520	25.9	58,900
SJ84-45	682	102	105	84	50	155	75	300	980	25.9	88,100
SJ84-50	742	102	105	84	50	155	75	300	1090	25.9	96,300

Research Laboratory

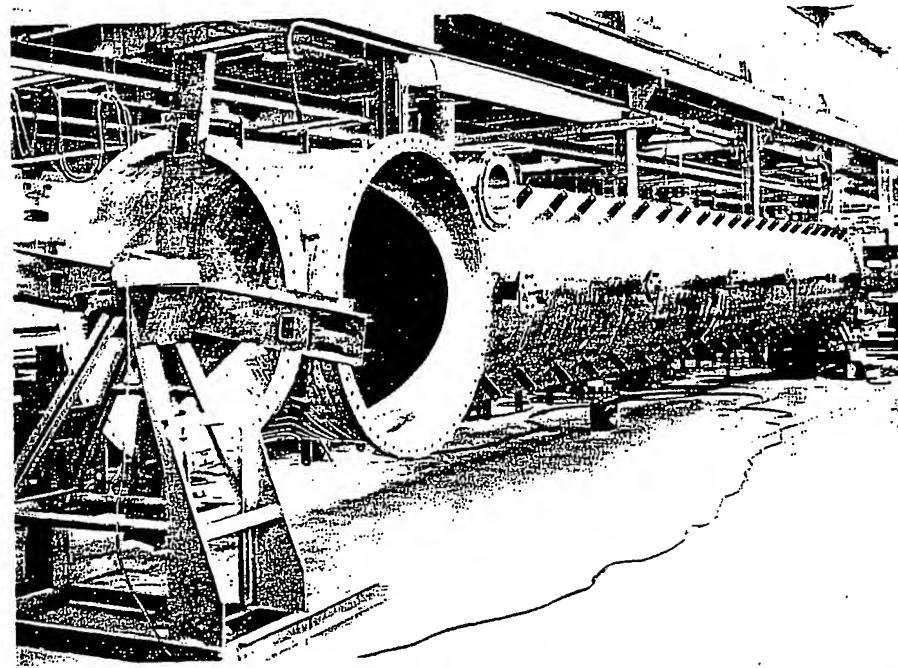


Products may be pre-tested in a production model Solidaire Dryer in the
Bepex Central Laboratory, Minneapolis. Test results are kept confidential.

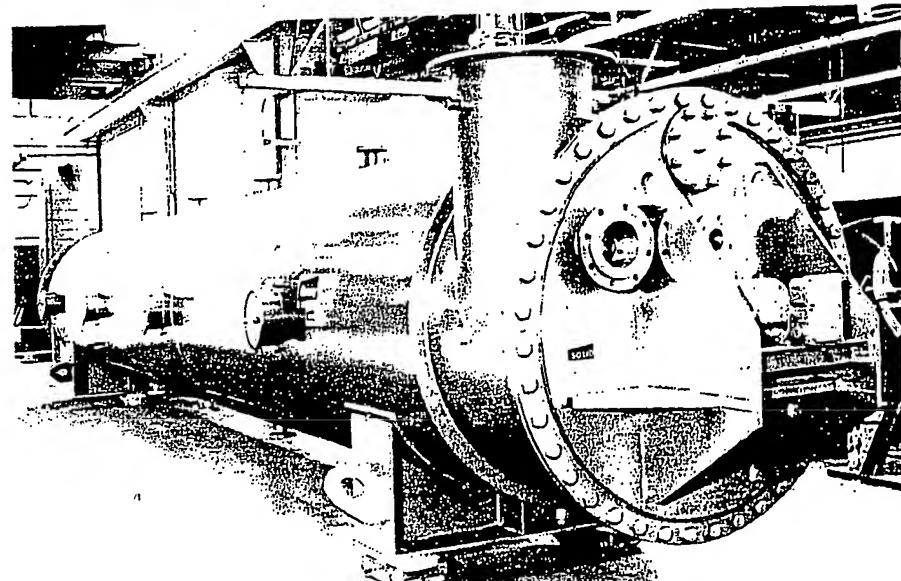
Construction



View of Solidaire rotor
and paddles under
construction.

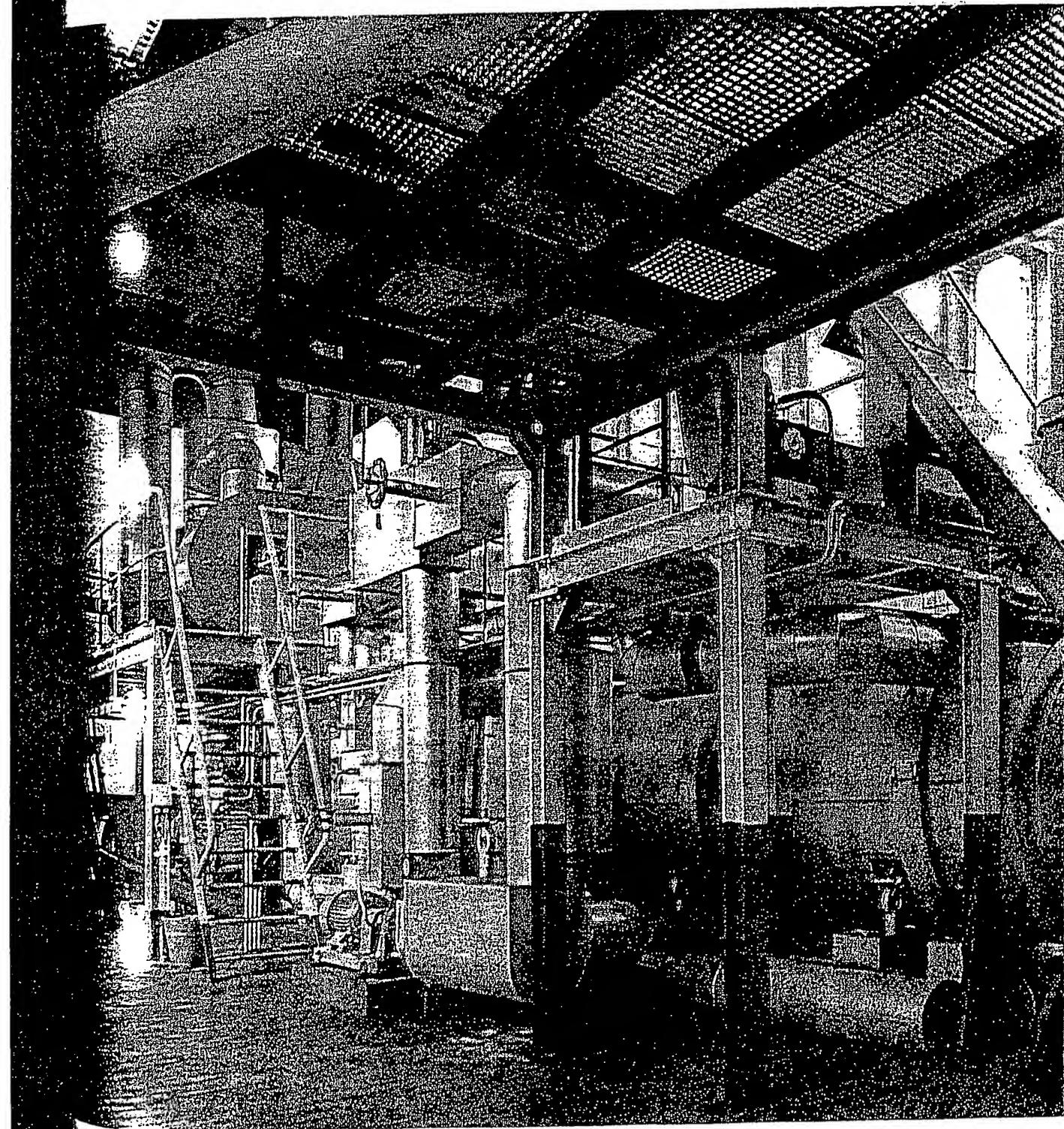


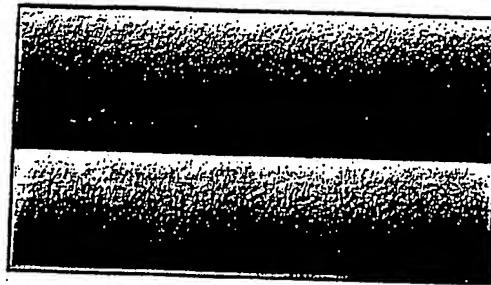
View of Solidaire
vessel under
construction.



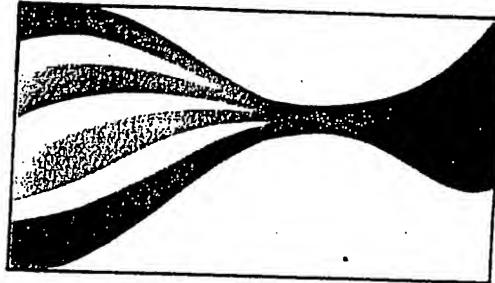
View of completed
Solidaire Dryer,
ready for shipment.

Solidaire Dryer used for
drying coagulated animal
blood for use as a
feedstuffs ingredient.

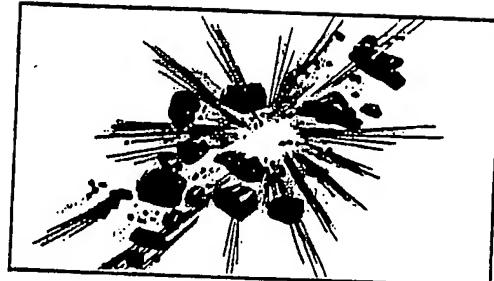




Drying



Mixing



Size Reduction

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